

# PATENT ABSTRACTS OF JAPAN

(11)Publication number : 08-235522

(43)Date of publication of application : 13.09.1996

(51)Int.Cl.

G11B 5/265

G11B 5/133

(21)Application number : 07-066860

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(22)Date of filing : 28.02.1995

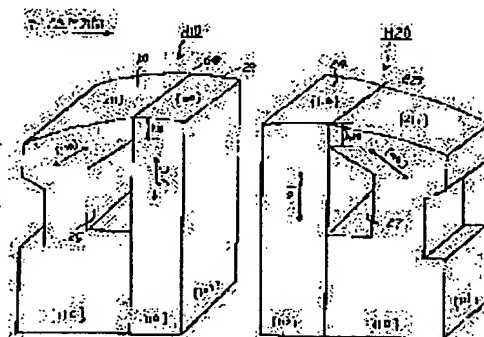
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## (54) MAGNETIC HEAD

### (57)Abstract:

**PURPOSE:** To provide a magnetic head having excellent reproduced output and wear resistance.

**CONSTITUTION:** This magnetic head is provided with a first head body H10 of which the contact surface with a traveling tape precedes and a second head body H20 which is arranged apart a prescribed spacing from the first head body by mounting C-shaped cores 10, 20 and I-shaped cores 23, 24 as one set via gaps G10, G20 at a rotating body. The magnetic path surfaces of the C-shaped cores of the first and second head bodies are formed as crystal surfaces 110, the tape sliding surfaces as 211 and the gap butt surfaces as 111. On the other hand, the magnetic path surfaces of the I-shaped cores are formed as crystal surfaces 110, the tape sliding surfaces as 211 and the gap butt surfaces as 100. The magnetic head having the good reproducing efficiency and excellent wear resistance is obtd.



## LEGAL STATUS

[Date of request for examination] 28.03.2001

[Date of sending the examiner's decision of rejection] 02.04.2004

[Kind of final disposal of application other than the examiner's decision of rejection or application converted registration]

[Date of final disposal for application]

[Patent number]

[Date of registration]

[Number of appeal against examiner's decision of rejection]

[Date of requesting appeal against examiner's decision of rejection]

[Date of extinction of right]

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**CLAIMS**

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[Claim(s)]

[Claim 1] It is carried in a rotation member and C mold core and an I-beam core are made into a lot through a gap. In the magnetic head which established the 1st head object which the contact to the record medium it runs precedes, and the 2nd head object arranged by having predetermined spacing on this 1st head object At least the magnetic-path side of said C mold core in said 2nd head object {110}. It considers as the crystal face which is set to {211} in a sliding surface with said record medium, and is set to {111} in a gap abutting surface. And while forming the crystallographic axis on said magnetic-path side [110] so that an include angle theta ( $0 \text{ degree} < \theta < 90 \text{ degrees}$ ) may be accomplished to said gap abutting surface A sliding surface with {110} and said record medium for the magnetic-path side of said I-beam core {110}. The magnetic head which makes a gap abutting surface the crystal face used as {100}, and is characterized by forming the crystallographic axis on said magnetic-path side [110] so that it may become parallel to said gap abutting surface.

[Claim 2] The magnetic head characterized by making the magnetic-path side of the 1st head object, the sliding surface of a record medium, and a gap abutting surface into the same crystal face as the 2nd head object in the magnetic head in claim 1 publication.

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**DETAILED DESCRIPTION**

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[Detailed Description of the Invention]

[0001]

[Industrial Application] This invention is used for a video tape recorder (VTR) etc., and relates to the suitable magnetic head.

[0002]

[Description of the Prior Art] Conventionally, it is carried in a rotating drum etc. and the magnetic head which carries out record playback of the information is in the tape it runs. Drawing 2 is the outline block diagram showing an example of the conventional magnetic head. 1st head object H1 which changes from ferrite material to the substrate which is not illustrated 2nd head object H2 Predetermined \*\*\*\*\* is carried out, and opposite arrangement is carried out and it is attached in rotation members, such as a rotating drum. 1st head object H1 And 2nd head object H2 It is C mold cores 1 and 2, a gap G1, and G2, respectively. It minds and the outline configuration is carried out with the I-beam cores 3 and 4. In addition, 6 and 7 are window parts and the coil which is not illustrated is wound around these window parts, respectively.

[0003] And these head object H1 and H2 While [211] and a gap abutting surface are made [ the magnetic-path side of C mold cores 1 and 2 which can be set ] into the crystal face of {111} for {110} and a tape sliding surface, respectively, [211] and a gap abutting surface are made [ the magnetic-path side of the I-beam cores 3 and 4 ] into the crystal face of {111} for {110} and a tape sliding surface, respectively. Moreover, the sense of a crystallographic axis [110] is the sense shown in illustration.

[0004] Moreover, this magnetic head is the head object H1 preceded at the time of tape contact initiation. For long duration modes, it is the head object H2 by the side of back. It has structure established on the assumption that it was used for canonical modes.

[0005]

[Problem(s) to be Solved by the Invention] By the way, the above-mentioned magnetic head takes into consideration the abrasiveness at the time of tape contact while aiming at improvement in a playback output as the crystal face of [211] of a tape transit magnetic-path side, and it is the head object H1. Gap G1 Depth of gap h1 It compares and is the head object H2. Gap G2 Depth of gap h2 The direction is set as size.

[0006] The reason is the head object H1 which a tape precedes at the time of contact of the tape which is not illustrated. When the tape sliding surface [the 211st page] of I core is passed and it results in the spacing section D, negative pressure will occur to a tape and a tape will be drawn in the direction of a lower part of this drawing in the shape of a curve here.

[0007] And head object H2 in which the tape of this curve condition carries out backward It collides with the tape sliding surface [211] of the I core 4, and is a corner A1 and A2 especially. It sets, and that wear is remarkable, takes a part for that wear into consideration, and it is this head object H2. Depth of gap h2 Head object H1 to precede Depth of gap h1 It is set as size.

[0008] However, although it is satisfied about a head life, when it sees about a playback output, it is a gap G2. Depth of gap h2 Since it became large, it had become the trouble of improvement in the further playback output.

[0009] Then, this invention is to solve an above-mentioned trouble and offer the magnetic head which raises a playback output, without dropping a head life.

[0010]

[Means for Solving the Problem] In order to solve the above-mentioned trouble, this invention will offer the magnetic head which consists of the following means of 1 and 2.

1) It is carried in a rotation member and make C mold core and an I-beam core into a lot through a gap. In the magnetic head which established the 1st head object which the contact to the record medium it runs precedes, and the 2nd head object arranged by having predetermined spacing on this 1st head object At least the magnetic-path side of said C mold core in said 2nd head object [110], It considers as the crystal face which is set to [211] in a sliding surface with said record medium, and is set to [111] in a gap abutting surface. And while forming the crystallographic axis on said magnetic-path side [110] so that an include angle theta ( $0 \text{ degree} < \theta < 90 \text{ degrees}$ ) may be accomplished to said gap abutting surface A sliding surface with [110] and said record medium for the magnetic-path side of said I-beam core [110], The magnetic head which makes a gap abutting surface the crystal face used as {100}, and is characterized by forming the crystallographic axis on said magnetic-path side [110] so that it may become parallel to said gap abutting surface.

[0011] 2) The magnetic head characterized by making the magnetic-path side of the 1st head object, the sliding

surface of a record medium, and a gap abutting surface into the same crystal face as the 2nd head object in the magnetic head in claim 1 publication.

[0012]

[Example] Hereafter, with reference to a drawing, it explains per example of this invention. Drawing 1 is the outline block diagram of the magnetic head concerning the example. The magnetic head concerning this example is not carried in magnetic recorder and reproducing devices, such as VTR, and the 1st head object H10 and the 2nd head object H20 have predetermined spacing in the substrate which is not illustrated, opposite arrangement is carried out and it is attached in rotation members, such as a rotating drum. The 1st head object H10 and the 2nd head object H20 are [ C mold cores 10 and 20 which consist of ferrite material, and ] SiO<sub>2</sub>, respectively. An outline configuration is carried out with the I-beam cores 23 and 24 which consist of ferrite material through the gaps G10 and G20 formed, and the coil which is not illustrated is wound around window parts 26 and 27, respectively.

[0013] And while {211} and a gap abutting surface are formed for {110} and a tape sliding surface as the crystal face of {110}, respectively, the magnetic-path side of C mold cores 10 and 20 in these head objects H10 and H20 {110} and a gap abutting surface are formed [ the magnetic-path side of the I-beam cores 23 and 24 ] for {110} and a tape sliding surface as the crystal face of {111}, respectively, and the depth of the depth h10 and h20 of the gap of a gap G10 and a gap G20 is made the same.

[0014] Moreover, the crystallographic axis [110] of the tape sliding surface {110} of the C mold each cores 10 and 20 is formed so that it may become an include angle theta ( $0 \text{ degree} < \theta < 90 \text{ degrees}$ ) to a gap abutting surface. Specifically, it is 55 degrees. Moreover, the crystallographic axis [110] of the magnetic-path side {110} of the I mold each cores 23 and 24 is formed so that it may become parallel to a gap abutting surface. And the 1st head object H10 is formed in long duration modes, and the 2nd head object H20 is formed in canonical modes.

[0015] Thus, the constituted magnetic head was carried in the record regenerative apparatus of a standard VHS method, and measurement evaluation of the playback output and wear condition of 1000 hours after was carried out.

[0016] consequently, as for degradation of the abrasiveness of the I-beam core 24 in the back head object H20, compared with the former, the improvement was remarkably found by a playback output coming out almost as usual, and the wear depth (amount) of the head object H10 and the head object H20 was almost the same, and was 5-6 micrometers.

[0017] Also from this measurement result, aiming at prevention of degradation by making the tape sliding surface of C mold cores 10 and 20 into the crystal face of {211} for degradation of a playback output, and aiming at wear prevention by making the tape sliding surface of the I-beam cores 23 and 24 into the crystal face of {110} for wear with a tape can guess the magnetic head of this example easily.

[0018] Moreover, in the above-mentioned example, although the I-beam cores 23 and 24 made the tape sliding surface the crystal face of {110}, the tape sliding surface only not only a configuration such but by the side of the I-beam core 24 especially located in the back at the time of large tape contact of a tape wear cause was made into the crystal face of {110}, and, as for the tape sliding surface of the I-beam core 23 located ahead, the result almost same also as the crystal face of {211} was obtained as usual.

[0019]

[Effect of the Invention] According to this invention, the magnetic head which was excellent in abrasion resistance more than before can be offered, with good playback output characteristics maintained.

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**DESCRIPTION OF DRAWINGS**

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[Brief Description of the Drawings]

[Drawing 1] It is the outline block diagram of the magnetic head concerning the example of this invention.

[Drawing 2] It is the outline block diagram of the conventional magnetic head.

[Description of Notations]

10 20 C mold core

23 24 I-beam core

26 27 Window part

G10, G20 Gap

H10 1st head object

H20 2nd head object

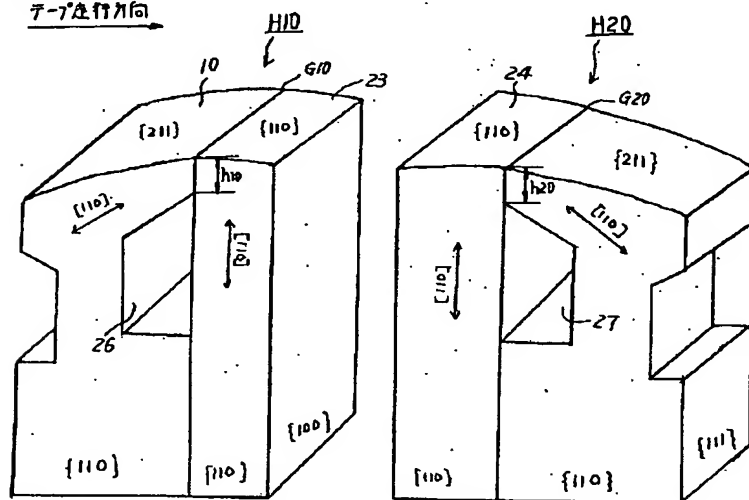
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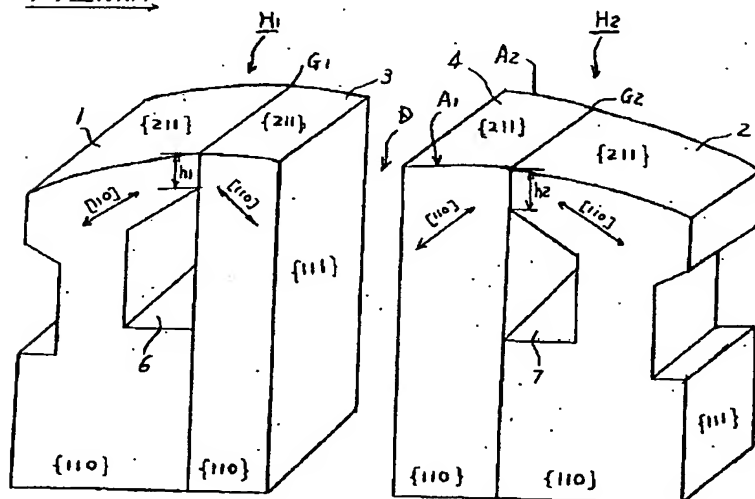
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- ## DRAWINGS

テ-7°座行方向



デブ進行方向



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